

AMENDMENTS TO THE CLAIMS:

Please cancel without prejudice claims 9, 10, 22 and 23, amend claims 1, 4, 6, 7, 11, 13, 14, 17, 20, 24 and 26 and add newly written claims 27 and 28 as follows.

This listing of claims will replace all prior versions, and listings, of claims in the application:

1. (currently amended) An image intensifier comprising:

an optical splitter operable to split radiation received from a radiation source into a plurality of optical channels;

a gated optical image intensifier having a plurality of image intensifying channels operable to intensify radiation received from a respective one of said plurality of optical channels; and

an electronic gating signal generator operable to generate independent time gating signals applied to respective ones of said plurality of intensifying channels such that said plurality of intensifying channels intensify radiation received from said radiation source at different times, wherein said plurality of intensifying channels are operable to intensify fluorescence radiation received from an object at respective times following excitation of fluorescence in said object so as to perform fluorescence lifetime imaging, wherein said optical splitter divides fluorescence radiation from said object in proportions such that those optical channels corresponding to intensifying channels that are gated to intensify later in said time gating sequence receive more of said fluorescence radiation.

2. (original) An image intensifier as claimed in claim 1, wherein said gated optical image intensifier is a unitary device such that said plurality of image intensifying channels share common gain controlling parameters.

3. (previously presented) An image intensifier as claimed in claim 1, wherein said gated optical image intensifier includes a photocathode divided into a plurality of separately gated radiation receiving areas.

4. (currently amended) An image intensifier as claimed in claim 3, wherein said plurality of separately gated radiation receiving areas are divided from each other by resistive strips so as to provide AC electrical separation therebetween.

5. (previously presented) An image intensifier as claimed in claim 3, wherein said gated image intensifier includes a gating signal electrode disposed adjacent said photocathode, said gating signal electrode being divided into a plurality of electrode portions indexed with respective ones of said plurality of separately gated radiation receiving areas and operable to couple a gating signal thereto.

6. (currently amended) An image intensifier as claimed in claim 1, wherein said electronic gating signal generator is triggered to generate said independent time of gating signals by a shared trigger signal.

7. (currently amended) An image intensifier as claimed in claim 1, wherein the radiation source comprises an object illuminated by a pulsed laser source.

8. (previously presented) An image intensifier as claimed in claim 6, wherein said shared trigger signal is synchronised with said pulsed laser source.

9. (cancelled).

10. (cancelled).

11. (currently amended) An image intensifier as claimed in claim ~~10~~1, wherein said fluorescence radiation is divided between said optical channels in proportions such that given an expected fluorescence lifetime decay characteristic each intensifying channel will receive an intensity of radiation whilst gated that is substantially constant between intensifying channels.

12. (previously presented) An image intensifier as claimed in claim 1, wherein said optical splitter and said gated optical image intensifier each both comprise three or four channels.

13. (currently amended) An image intensifier as claimed in claim 1, wherein said image intensifier is ~~operable~~adapted to perform one of:

fluorescence correlation spectroscopy;

imaging through diffuse media;

~~image~~imaging physiological electrical signals;

endoscopic imaging; and
histopathological imaging.

14. (currently amended) A method of image intensification, said method comprising the steps of:

splitting radiation received from a radiation source into a plurality of optical channels with an optical splitter;

intensifying radiation received from said plurality of optical channels within respective ones of a plurality of intensifying channels of a gated optical image intensifier; and

generating independent time gating signals applied to respective ones of said intensifying channels such that said plurality of intensifying channels intensify radiation received, wherein said plurality of intensifying channels are operable to intensify fluorescence radiation received from an object at respective times following excitation of fluorescence in said object so as to perform fluorescence lifetime imaging, wherein said optical splitter divides fluorescence radiation from said object in proportions such that those optical channels corresponding to intensifying channels that are gated to intensify later in said time gated sequence receive more of said fluorescence radiation.

15. (original) A method as claimed in claim 14, wherein said gated optical image intensifier is a unitary device such that said plurality of image intensifying channels share common gain controlling parameters.

16. (previously presented) A method as claimed in claim 14, wherein said gated optical image intensifier includes a photocathode divided into a plurality of separately gated radiation receiving areas.

17. (currently amended) A method as claimed in claim 16, wherein said plurality of separately gated radiation receiving areas are divided from each other by resistive strips so as to provide an AC electrical separation therebetween.

18. (previously presented) A method as claimed in claim 16, wherein said gated image intensifier includes a gating signal electrode disposed adjacent said photocathode, said gating signal electrode being divided into a plurality of electrode portions indexed with respective ones of said plurality of separately gated radiation receiving areas and operable to couple a gating signal thereto.

19. (previously presented) A method as claimed in claim 14, wherein a shared trigger signal triggers generation of said independent time gating signals.

20. (currently amended) A method as claimed in claim 14, wherein the radiation source comprises an object illuminated by a pulsed laser source.

21. (previously presented) A method as claimed in claim 19, wherein said shared trigger signal is synchronised with said pulsed laser source.

22. (cancelled).

23. (cancelled).

24. (currently amended) A method as claimed in claim ~~23~~14, wherein said fluorescence radiation is divided between said optical channels in proportions such that given an expected fluorescence lifetime decay characteristic each intensifying channel will receive an intensity of radiation whilst gated that is substantially constant between intensifying channels.

25. (previously presented) A method as claimed in claim 14, wherein said optical splitter and said gated optical image intensifier each both comprise three or four channels.

26. (currently amended) A method as claimed in claim 14, wherein said ~~image intensify~~method is operable to perform one of:

fluorescence correlation spectroscopy;

imaging through diffuse media;

~~image~~imaging physiological electrical signals;

endoscopic imaging; and

histopathological imaging.

27. (new) An image intensifier comprising:

an optical splitter operable to split radiation received from a radiation source into a plurality of optical channels;

a gated optical image intensifier having a plurality of image intensifying channels operable to intensify radiation received from a respective one of said plurality of optical channels; and

an electronic gating signal generator operable to generate independent time gating signals applied to respective ones of said plurality of intensifying channels such that said plurality of intensifying channels intensify radiation received from said radiation source at different times, wherein said optical splitter divides fluorescence radiation from said object in proportions such that those optical channels corresponding to intensifying channels that are gated to intensify later in said time gating sequence receive more of said fluorescence radiation.

28. (new) A method of image intensification, said method comprising the steps of:

splitting radiation received from a radiation source into a plurality of optical channels with an optical splitter;

intensifying radiation received from said plurality of optical channels within respective ones of a plurality of intensifying channels of a gated optical image intensifier; and

generating independent time gating signals applied to respective ones of said intensifying channels such that said plurality of intensifying channels intensify radiation received, wherein said optical splitter divides fluorescence radiation from said object in proportions such that those optical channels corresponding to intensifying channels that are gated to intensify later in said time gated sequence receive more of said fluorescence radiation.